NOTES ON THE FLORA OF PENIKESE ISLAND, MASSACHUSETTS

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Through the courtesy of the staff of the Botany course of the Marine Biological Laboratory at Woods Hole, the author had the opportunity to revisit Penikese Island on July 6, 1960. In the short time available some significant changes in the vegetation were noted, since my observation of 1948, which should be recorded. This island is famous as the site of the Anderson School of Natural History, conducted by Louis Agassiz in 1873. The flora of the island was first recorded by David Starr Jordan (1874). Later surveys were made by Lewis (1924), Fogg (1930) and Moul (1948).

The island has remained essentially grass covered, but two species of plants that formerly were very common everywhere have become extremely rare. These are the wild carrot *(Daucus carota L.)* and the daisy *(Chrysanthemum leucanthemum* L. var. *pinnatifidum* Lecoq. & LaMotte). In 1947 when these plants were common, the nesting bird population consisted almost exclusively of the Common and Roseate Terns. Today the population is dominantly Herring Gulls with a few Black Backed Gulls. It is possible that the great population of larger birds has been responsible for the eradication of these plants.

The two ferns, *Dennstaedtia punctilobula* (Michx.) Moore and *Dryopteris thelypteris* (L.) Gray var. *pubescens* (Lawson) Nakai, are no longer growing at their former sites. *Datura stramonium* L. was formerly very common along the strand line and around the ruins of the buildings, but only one plant was located this year. *Raphanus raphanistrum* L. which was confined to the vicinity of South Pond in 1947 has become established in large pure stands at the edge of the morainal cliffs, along the south shore.

A number of the shrubs are spreading. *Rubus laciniatus* Willd., which formed a single thicket in a hollow near the south shore in 1947, has grown vigorously and spread, form-

ing three large distinct clumps. *Rhus copallina* L. grew only along the shore near the wharf in 1947, now it completely covers the crest of a grassy hillside to the west of the old cottage, growing to two feet in height. The thickets of *Sambucus canadensis* L. have spread, forming large thickets; this is particularly noticeable on the north side of the island near the Leper Cemetery.

The tree population has decreased. All of the *Pinus sylvestris* L. planted some years ago is dead. The maples (*Acer pseudoplatanus* L.) maintain a constant height, level with the top of the protective morainal hill. They have recovered from the severe hurricane damage, which was evident in 1947. The single specimen of *Populus deltoides* Marsh., east of the wharf, represented by sucker only in 1947, still exists, but is shrub-like and about 6 feet tall. Dead twigs indicate killing back by wind laden with salt spray. *Populus alba* L. still forms extensive thickets on the slope above the cottage, but none of these trees is more than 5 feet tall.

In 1948, I expressed the belief that the original tree cover, mentioned by Gosnold's naturalists in 1602, might return, but today the evidence indicates that a grass "subclimax" may persist into the future. — RUTGERS UNIVERSITY, NEW BRUNSWICK, N. J.

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